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EXAMINER

LUCAS, ZACHARIAH

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1648

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PAPER

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Office Action Summary	Application No. 09/510,314	Applicant(s) ZHOU ET AL.	
	Examiner Zachariah Lucas	Art Unit 1648	

-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

Period for Reply

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 09 October 2009.
- 2a) ☐ This action is **FINAL**. 2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 1-23 is/are pending in the application.
- 4a) Of the above claim(s) 5-23 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 1-4 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 22 February 2000 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- | | |
|----------------------------------------------------------------------------------------------------------------------------------|-----------------------------------------------------------------------------------------|
| 1) <input checked="" type="checkbox"/> Notice of References Cited (PTO-892) | 4) <input type="checkbox"/> Interview Summary (PTO-413)
Paper No(s)/Mail Date. _____ |
| 2) <input type="checkbox"/> Notice of Draftsperson's Patent Drawing Review (PTO-948) | 5) <input type="checkbox"/> Notice of Informal Patent Application |
| 3) <input checked="" type="checkbox"/> Information Disclosure Statement(s) (PTO/SB/08)
Paper No(s)/Mail Date <u>9/22/00</u> . | 6) <input type="checkbox"/> Other: _____ |

DETAILED ACTION

1. Claims 1-23 are pending in the application.

Election/Restrictions

2. Applicant's election with traverse of Group I, and the species represented by the election of SEQ ID NO: 7, in the reply filed on October 9, 2009 is acknowledged. The traversal is on the ground(s) that the various inventions identified by the Examiner do not warrant separate search and examination, and that there would be no undue burden in the examination of each of such inventions. This is not found persuasive because each of the various inventions requires a separate and non-coextensive search, and may involve different issues of patentability.

The requirement is still deemed proper and is therefore made FINAL.

3. Claims 5-23 are withdrawn from further consideration pursuant to 37 CFR 1.142(b), as being drawn to a nonelected inventions, there being no allowable generic or linking claim. Applicant timely traversed the restriction (election) requirement in the reply filed on October 9, 2009.
4. Claims 1-4 are under consideration.

Information Disclosure Statement

5. The information disclosure statement (IDS) submitted on September 22, 2000 is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement has been considered by the examiner.

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Claim Rejections - 35 USC § 112

6. The following is a quotation of the second paragraph of 35 U.S.C. 112:

The specification shall conclude with one or more claims particularly pointing out and distinctly claiming the subject matter which the applicant regards as his invention.

7. Claims 2 and 4 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention. Claim 2 is treated as representative. This claim is drawn to a nucleic acid encoding a peptide comprising a ZA loop of a bromodomain, the nucleic acid further comprising "a heterologous nucleotide sequence." It is not clear what is meant by the quoted phrase. The term "heterologous" is a relative term, implying a different source from a reference object. In the present instance, the claims fail to identify what the "heterologous nucleotide sequence" is heterologous to.

For the purposes of this action, unless otherwise stated, the claims are read as requiring a sequence heterologous to the sequence encoding the ZA loop of the bromodomain.

Claim Rejections - 35 USC § 102

8. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(a) the invention was known or used by others in this country, or patented or described in a printed publication in this or a foreign country, before the invention thereof by the applicant for a patent.

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

9. Claims 1-4 are rejected under 35 U.S.C. 102(b) as being anticipated by Nakatani et al. (WO 98/03652). Claim 1 is drawn to an isolated nucleic acid encoding a peptide comprising a

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ZA loop of a bromodomain wherein the ZA loop comprises a sequence according to SEQ ID NO: 3. It is noted that the bromodomain of SEQ ID NO: 7 of the present application comprises such a ZA loop (residues 23-51 of SEQ ID NO: 7). Claim 3 reads on sequences encoding a peptide consisting of 21-40 amino acids wherein the peptide comprises the ZA loop described above. Such a nucleic acid molecule would include between 63 and 120 nucleotides. Claims 2 and 4 read on the nucleic acids of claims 1 and 3, respectively, and require that the nucleic acid further comprises a heterologous nucleotide sequence.

The protein of SEQ ID NO: 2 of the reference also comprises a sequence according to residues 23-51 of SEQ ID NO: 7. The reference identifies the protein of SEQ ID NO: 2 as a fragment of a protein identified as P/CAF (SEQ ID NO: 1 of the reference). Pages 7-8. The reference also teaches the making of fusion proteins of the protein (or fragments thereof) with heterologous sequences. Page 9, lines 10-22. In addition, the reference teaches nucleic acids encoding these proteins. See e.g., pages 11-15. Because SEQ ID NO: 2 comprises the ZA loop in addition to other P/CAF sequences, the nucleotide sequence encoding it would also comprise sequences heterologous to the ZA loop coding sequence. Further, as the reference teaches fusion proteins comprising the P/CAF domains, nucleic acids encoding such fusions would also comprise sequences encoding heterologous proteins or amino acids sequences relative to the P/CAF sequences. The reference also teaches the inclusion in the nucleic acids encoding the P/CAF polypeptides of heterologous sequences acting as promoters, vectors, or of sequences encoding signal peptides (pages 15-16). Each of these nucleotide sequences would also be heterologous to either the ZA loop or the bromodomain or the P/CAF coding sequences. The reference therefore teaches the nucleic acids of claims 1 and 2.

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In addition, the reference also teaches nucleic acids representing fragments of the coding sequences for the P/CAF polypeptides which sequences may be used as probes or primers. Page 19. The reference indicates that such sequences may comprise between 10 nucleotides up to the full-length of the target nucleic acid coding sequence. Page 20. Among the nucleotides that would have been apparent from this disclosure are nucleic acids representing fragments of SEQ ID NO: 2 of the reference, including the fragment consisting of or comprising the ZA loop coding region. (I.e., while the reference does not identify the ZA loop, and those in the art may not have identified it as the ZA loop coding fragment, the fragment itself would have been apparent to those in the art from the teachings of the reference). It is noted that a fragment comprising the sequence encoding the ZA loop in addition to other non-ZA loop bromodomain sequences is considered to meet the limitation of claim 4 (see the rejection of claims 2 and 4 under 35 USC 112, second paragraph above).

The reference therefore anticipates the indicated claims.

10. Claims 1 and 2 are rejected under 35 U.S.C. 102(a) as being anticipated by Dhalluin et al. (Mature 399:491-96- reference of record in the September 2000 IDS). The claims have been described above. The reference teaches an artificial vector comprising the coding sequence for a region of P/CAF comprising the bromodomain. Page 495 ("Sample preparation" section). The reference identifies this region as comprising the ZA loop of SEQ ID NO: 7. Page 492, Figure 1. Because the vector is an artificial vector, it inherently comprises sequences heterologous to the incorporated P/CAF encoding sequence. The reference therefore anticipates the indicated claims.

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Claim Rejections - 35 USC § 103

11. The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

12. Claims 3 and 4 are rejected under 35 U.S.C. 103(a) as being unpatentable over Nakatani as applied above in view of Malcolm et al.(EP 0124221). Claim 3 has been described above. Claim 4 reads on the nucleic acid of claim 4, wherein the nucleic acid contains a heterologous sequence.

Nakatani has been described above. As was indicated above, the reference teaches the production of fragments of the P/CAF coding sequence for use as probes or primers. One of such fragments that would be apparent to those in the art is the fragment encoding the ZA loop of the bromodomain of SEQ ID NO: 2 of the reference as was described above. However, the reference does not teach or suggest the inclusion of a non-P/CAF heterologous nucleic acid sequence. This rejection addresses an alternative interpretation of claim 4 requiring the presence of a non-P/CAF nucleotide sequence in the claimed nucleic acid.

As was indicated above, Nakatani does teach the use of the disclosed fragments of the P/CAF coding sequence as probes.

Malcolm discloses methods for detecting nucleic acid probes bound to target sequences. The reference teaches that one means for such detection is through the use of a probe containing a poly(dA) or poly(dT) tail (i.e. a heterologous sequence) which is used to target a marker

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attached to a polynucleotide which will hybridize with the tail. Abstract. From these teachings, it would have been obvious to those of ordinary skill in the art to have includes such tails in the probes disclosed by Nakatani. The combined teachings of the references therefore render the claimed nucleic acids obvious.

13. This application currently names joint inventors. In considering patentability of the claims under 35 U.S.C. 103(a), the examiner presumes that the subject matter of the various claims was commonly owned at the time any inventions covered therein were made absent any evidence to the contrary. Applicant is advised of the obligation under 37 CFR 1.56 to point out the inventor and invention dates of each claim that was not commonly owned at the time a later invention was made in order for the examiner to consider the applicability of 35 U.S.C. 103(c) and potential 35 U.S.C. 102(e), (f) or (g) prior art under 35 U.S.C. 103(a).

Conclusion

14. No claims are allowed.

15. The prior art made of record and not relied upon is considered pertinent to applicant's disclosure.

Haynes et al., Nucleic Acids Res 20:2603. This reference identifies a number of bromodomain sequences, of which most or all share the ZA loop sequence of SEQ ID NO: 3.

16. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Zachariah Lucas whose telephone number is (571)272-0905. The examiner can normally be reached on Monday-Friday, 8 am to 4:30 pm.

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If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Robert B. Mondesi can be reached on 571-272-0956. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300.

Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

/Zachariah Lucas/
Primary Examiner, Art Unit 1648